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The Galactic-Center excess and 511 keV Bulge emission: two sides of the same coin?

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A clear excess at ~ 2 GeV, known as the Galactic-Center Excess (GCE), has been detected in the Galactic Bulge region by the Fermi telescope. In addition, the Galactic Bulge is characterised by the annihilation of positrons resulting in a 511 keV line. Both signals look morphologically similar, but so far a detailed comparison has been lacking from the literature. We model the GCE using the new gamma-ray modelling code SkyFact and compare the results to spatial models of the 511 keV excess. We find that the GCE and 511 keV excess are compatible with identical source distributions and speculate about potential common origins in terms of population synthesis. In addition, we discuss future directions that can potentially test whether the GCE and 511 keV signal are connected.

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